

## EXECUTIVE SUMMARY

HIV/AIDS Annual Report – March 2006  
State of Arizona

### **General Comments:**

In Arizona's HIV/AIDS reporting, estimates of incidence are based upon the sum of new HIV cases, and new AIDS cases which were not diagnosed as HIV infections in any prior calendar year. These cases are referred to as *emergent* cases and are used as an estimate of incidence. Cases of HIV/AIDS can only be counted as emergent in the year they were first diagnosed with HIV infection. Persons who were emergent as HIV and diagnosed as AIDS in the same calendar year are counted as emergent AIDS to avoid double counting. This method is the most straightforward method available for estimating incidence.

In annual and semi-annual reports prior to 2004, categorical data for race/ethnicity, gender, mode of transmission, and age were reported as cumulative counts back to 1981. This approach can mask recent trends in the epidemic since they contain data from such a long span of time. The span of data covered in this report is limited to 10 years.

Reporting of annualized case rates per 100,000 population permits valid comparison of HIV prevalence and incidence among Arizona's fifteen counties despite great disparities in population. Sparsely populated regions may experience larger fluctuations in rates with small changes in case numbers due to statistical variance. This phenomenon can often mislead evaluations of change. To minimize this problem, percentages of statewide totals for the year are also reported which, when considered together with local rates, offer a better context for evaluating the scope of epidemic impact.

This report includes current (3/6/06) estimated prevalence, 2004 reported *emergent* case counts, and the 2004 population estimate for each county or region. For comparison to 2003 prevalence or incidence, please refer to the 2005 Annual report. Incidence estimates for the 5-year reporting timeframes (1995-1999 and 2000-2004) used in this report are expressed as annualized rates for purposes of valid comparison with the 5-year timeframes in prior annual reports, or single-year annual rates provided elsewhere. These annualized 5-year rates may be regarded as the average annual rate across the 5 years in the reporting timeframe.

### **Current Data:**

#### **Cumulative counts:**

Since 1981, the year in which HIV/AIDS was first reported in Arizona, there have been 19,414 reports of HIV infection or perinatal exposure made to ADHS, of which 19,179 were confirmed cases of HIV infection, 15,480 of which were emergent in Arizona, and 3,699 were emergent outside of Arizona. Of the 15,480 cases emergent in Arizona:

- 5,411 (35.0%) were emergent as AIDS, and 10,069 (65.0%) were emergent as HIV.
- 3,938 of those Arizona emergent HIV cases were diagnosed with AIDS in a later year (3,260 were diagnosed in Arizona, and 678 in another state).

#### Mortality:

Of 19,179 confirmed reports of HIV infection submitted to ADHS, 9.7% (n=651) of HIV cases and 55.8% (n=6,952) of AIDS cases are known to be deceased. The annual number of deaths among persons with AIDS in the state declined in the late 1990's, attributable to the introduction of multi-drug treatment. Between 1999 and 2004 the number of deaths among persons with HIV or AIDS has remained level at between 4.0-4.4 per 100,000 per year. There were 205 registered deaths among persons known to be HIV positive in 1999 (rate = 4.08 per 100,000) and 238 deaths in 2004 (rate = 4.15 per 100,000). Because of reporting delays, the current death count for 2005 is lower than prior years. However the current proportion of reported deaths to reported emergent cases for 2005 is 33% below the proportions in prior years, suggesting that the number of reported deaths to persons with HIV/AIDS may drop in 2005 from previous years. This apparent change is being watched with interest at ADHS. In all likelihood this is a reporting phenomenon that is not reflective of any change in actual trends.

#### Prevalence:

Arizona currently has 10,939 (up 743, or 7.3% from 2005) persons known to be living with HIV or AIDS. Among persons now living with HIV infection, 5130 have a diagnosis of AIDS (up 452, or 9.7% from 2005), and 5,809 have a diagnosis of HIV (up 291, or 5.3% from 2005). The state as a whole has a reported HIV disease prevalence rate of 190.5 per 100,000 persons, up slightly from 182.7 in 2005 and 178.0 in 2004. This shows that the prevalence rate of reported HIV infection in Arizona's population is gradually increasing. Based on current prevalence estimates, at least 1 of every 525 persons in Arizona is reported with HIV infection, up from 1 of every 547 persons in 2005. Prevalence of HIV and AIDS in Arizona are disproportionately distributed, occurring predominantly among persons who engage in high-risk sexual activity, most significantly among men who have sex with men (MSM), and injection drug users (IDU). Higher prevalence rates are also observed in urban regions than in rural regions. Considering Arizona counties with population density at or above 50 persons per square mile as urban, and those below 50 as rural, current reported HIV prevalence among urban counties is 214 per 100,000, up from 206 per 100,000 in 2005, and 98 per 100,000 among rural counties, up from 89 per 100,000 in 2005. Maricopa and Pima, Arizona's two urban counties together contain 77% of Arizona's population, but account for 86% of current HIV prevalence and 89% of emergent cases in 2004.

Arizona's 13 rural counties together contain 84% of the geographic area of the state, 23% of the population, 12% of reported HIV prevalence, and 11% of emergent cases in 2004. All of these counties have HIV prevalence rates below 126 per 100,000 except Pinal County. Pinal County is a rural county (population density = 40 p/sq.mi.) with an estimated prevalence rate of 174 per 100,000, and a 5-year incidence rate equal to that of Maricopa County, the most urbanized county in the state. Pinal County and Graham

County are unusual in having proportionately large incarcerated populations (5.02% in Pinal, 7.9% in Graham). Prisoners account for 30-45% of county HIV/AIDS prevalence in Pinal and Graham counties, and nearly 60% of emergent cases. Most prisoners in Pinal and Graham counties do not come from those counties, but from urban counties like Maricopa and Pima counties. Excluding prison populations, Graham and Pinal county rates are typical for rural counties in Arizona.

Two percent of reported prevalence is among persons who have no known current address. These are persons who are lost to follow-up due to being chronically homeless, out of state, or whose status may be unreported deceased. It is expected that a disproportionate number of these are likely to be present in urban locations, but they are not included in the urban or rural prevalence data reported above. Homeless persons are typically difficult to track by conventional means, and are found primarily in urban settings.

#### Incidence:

In the past decade, the annual rate for reported emergent HIV infection has shown a steady decline from 24.7 per 100,000 in 1990 to 12.7 per 100,000 in 2004. Within the United States, Arizona is currently considered a moderate incidence region for HIV infection.

During 2004 ADHS HIV/AIDS program initiated the Serological Testing Algorithm for Recent HIV Sero-conversion (STARHS) as a component of ongoing incidence surveillance. This is part of a national program by the Centers for Disease Control (CDC) to evaluate to what extent current HIV incidence is due to recent infections or reporting of newly discovered, yet older, infections.

#### Gender trends:

Throughout the epidemic in Arizona, the majority of emergent HIV infections have been among males, who comprise 88% (13,626/15,480) of all confirmed Arizona emergent HIV infections and 86.4% of current estimated prevalence. But the proportion of female cases is slowly increasing. For the three-year period from 1985 to 1987, 6.6% of emergent cases of HIV infection were female, whereas for the three-year period from 2002 to 2004, 14.5% of emergent cases were female.

#### Age trends:

Between 2000 and 2004 in Arizona more emergent HIV infections were found in the 35-39 year age range than in other age group (703 cases). Next largest was the 30-34 year age group (642), followed by the 40-44 year age group (574). Lengthy and variable latency periods between HIV infection and AIDS defining illness suggest that age at infection can be years (the CDC estimates mean latency =10 years) earlier than age at emergence.

There have been 3 reports of emergent pediatric (under age 13) HIV infection in 2004 as of the date of this report, and 3 in 2003. Reporting delay may cause incomplete annual counts to remain for some months after a calendar year ends. The 5-year incidence of

emergent HIV infection among persons under 13 has been 27 (19 HIV, and 8 AIDS cases), and the 3-year incidence has been 10 (9 HIV, and 1 AIDS cases).

#### Race/Ethnicity trends:

Trends of emergent HIV infection among all racial ethnic groups in Arizona are reflective of broader population trends with the clear exception of Non-Hispanic Blacks. Non-Hispanic Blacks were just 3.4% of Arizona's population in 2004, but accounted for 9.6% of emergent HIV infection. This 3 fold disproportionate impact is not seen among other racial/ethnic groups. In 2004 Hispanics of all races were 28.0% of the state population, and 31.4% of emergent HIV infection. American Indian/Alaska Natives were 4.6% of the state population in 2004, and 5.6% of emergent HIV infection. Asian/Pacific Islanders were 2.3% of the state population in 2004, and 1.1% of emergent HIV infection.

#### Risk/Transmission mode trends:

The predominant behavior associated with emergent HIV infection in Arizona continues to be men who have sex with men (MSM), which was reported in 65.9% of emergent HIV infections in 2004. MSM as a behavior associated with emergent HIV infection appears to be rising in Arizona. After declining steadily, the proportion of emergent HIV cases reporting MSM behavior reached 59% in 1995, and remained level through 2000. Beginning in 2001, the proportion of emergent HIV cases reporting MSM behavior rose to 72.1% by 2003, falling back to 65.9% in 2004. Five-year MSM emergence rose between 2003 and 2004 from 68.6% to 69.0%.

Injection drug use (IDU) is the second most frequently reported behavior associated with emergent HIV infection. In 2004, IDU behavior was associated with 19.4% of emergent HIV infection. As a proportion of emergent cases, IDU may be declining. Five-year IDU emergence fell between 2003 and 2004 from 23.0% to 22.1%.

High Risk Heterosexual (HRH) is only considered the mode of HIV infection when MSM or IDU is not reported. HRH was associated with emergent HIV infection in 5% of cases in the early 1990's. In 2004, HRH was associated with 16.1% of emergent HIV infection reports. Five-year HRH emergence rose between 2003 and 2004 from 12.8% to 13.0%. Among all risk categories, MSM and HRH are the only categories that appear to be increasing as a proportion of emergent HIV infection.

#### Groups of Special Concern:

Recent epidemiologic data suggest that two groups – Black non-Hispanic Women, and prisoners in the state Department of Corrections are of particular concern. Rates of emergent HIV in 2004 among Black non-Hispanic women were 17 times greater than the rate among White non-Hispanic women. The most current trend data suggest that emergent rates among Black non-Hispanic women may be rising. During 2003 and 2004 the annual number of cases of emergent HIV among Black non-Hispanic women (3.1% of the state population of women) have exceeded the number of any other race/ethnicity group, including White non-Hispanic women (62.9% of the state population of women).

The most current data suggest that HIV prevalence in the state's prison system may be substantially higher than reported. Reported rates of HIV infection among prisoners are known to be over 4 times the state average. Prisoners are 0.56% of the state population, but account for 2.4% of reported HIV/AIDS prevalence, and 6.1% of 5-year HIV/AIDS emergence for Arizona. Prisons experience high HIV/AIDS rates because demographic and behavioral factors among prison populations concur with prevailing HIV/AIDS demographic and behavioral factors.

Other Issues:

Lengthy delays in completion of case investigations reported in 2005 have largely been resolved. This may explain the large relative increase in prevalence (7.3% in 12 months) and the relatively stable level of emergent cases reported. Many of these backlogged cases will have increased HIV/AIDS emergent counts for prior years. There is a renewed emphasis upon timely completion of HIV/AIDS surveillance reporting, and partner counseling and referral services (PCRS) as a critical component of primary case investigation. Improved partner counseling and referral has resulted in discovery of previously unknown HIV infection. The most current Arizona Counseling and Referral Services data show that 34% of elicited partners tested, were testing positive, and were previously unreported cases of HIV infection. Among all partners elicited, nearly 21% were persons whose HIV positive status had been previously reported to ADHS. These data underscore the efficiency of PCRS as a tool for discovery of new and/or unreported HIV infection, and the importance of behavior modification in the context of post-HIV diagnosis counseling/prevention education.